

REMARKS

Claims 1-76 are pending in the present application.

Claims 1, 29 and 31-51 have been amended.

Claims 52-76 are newly added.

Reconsideration on the merits is respectfully requested.

The claims are believed to be allowable for the reasons set forth herein. Notice thereof is respectfully requested.

Claim Rejections - 35 USC § 112

Claims 29-51 are rejected under 35 U.S.C. 112, second paragraph as being indefinite.

Claims 29 and 31-51 have been amended thereby rendering the rejection moot.

Claim Rejections - 35 USC § 101

Claims 31-51 are rejected under 35 U.S.C. 101 as being directed to a use without providing any steps involved in the process.

The rejection has been rendered moot by the amendment of claims 31-51.

Claim Rejections - 35 USC § 103

Claims 1, 15-28, 31 and 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hell et al. (US 2001/0007352) in view of Homme et al. (US 2001/0030291) and Okada et al. (US 2002/0162965).

Hell et al. is cited as disclosing a binderless storage phosphor panel or screen. As realized by the Office, Hell et al. only teaches glass or aluminum material as a support.

Homme et al. is cited as disclosing amorphous carbon and Okada et al. is cited in support of Homme et al. to teach advantages over aluminum and glass.

The present application is specific for use in mammography. Mammography is unique in the field of imaging due, in part, to the low subject contrast and the structural limitations of the cassette resulting thereby. Typical radiography has the advantage of a high subject contrast. For example, images are being made of bone within a soft tissue wherein the soft tissue is so thoroughly penetrated by the radiation that it appears to be non-existent in the image. This type of imaging is accomplished with a high KeV to achieve high penetration of the bone. With mammography the subject contrast is very low due to the fact that the tissue being imaged is all soft tissue with potentially minor calcification. If a mammographic image were obtained with typical radiation doses the breast tissue would

not be visualized at all. Therefore, to achieve even a reasonable image a low penetrating energy must be employed to achieve adequate contrast. Unfortunately, the low penetrating energy is insufficient to penetrate many materials. This places a particular burden on the practitioner to assemble a cassette with "transparent" materials.

In an effort to advance the application to issuance claim 1 has been amended to specifically recite that the amorphous carbon is on the opposite side of the phosphor from the exposure source.

Okada et al. is specific to a scintillator panel wherein amorphous carbon is utilized as a base. As illustrated in Fig. 1 the base, 111, is on the exposure side of the phosphor layer with the sensor, 100, opposite thereto. One of skill in the art would not expect this structure to be suitable for use in mammography due to the inability of the x-ray beam to penetrate the carbon and phosphor in an amount sufficient to reach the sensor. Furthermore, multiple layers are taught for adhesion.

One of skill in the art would have no teachings within Okada et al. upon which they would be motivated to remove the support from the exposure side of the phosphor. In fact, it is not clear if the panel of Okada et al. could even be prepared without the support layer on the exposure side of the panel.

Homme et al. teaches the use of carbon in passing, however, the teachings clearly indicate that aluminum, graphite, beryllium, silicon carbide, glass and fiber optic plates all work equally well. One of skill in the art would therefore have no basis for selecting carbon from the list of equal options. One would not be motivated to even consider Homme et al. since the primary teachings are for vapor deposition of an organic film which has nothing in common with the issue at hand.

In summary, Okada et al. teaches the use of a carbon layer between the exposure source and the phosphor. This is contrary to the teachings of the present invention. One of skill in the art would have no basis for incorporating the carbon layer into a mammography screen for use with low penetrating x-radiation except based on a hindsight reading of the present application. Homme, et al. does not mitigate the deficiencies of Okada et al.

Applicants respectfully submit that the rejection of claims 1, 15-28, 31 and 45-51 under 35 U.S.C. 103(a) as being unpatentable over Hell et al. in view of Homme et al. and Okada et al. is improperly based on teachings which are contrary to the claimed invention. The rejection is therefore improper, overcome by amendment and traversed.

Claims 2-14, 29-30 and 32-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hell et al., Homme et al. and

Okada et al. as applied above and further in view of Willems et al. (US 5,736,069).

Hell, Homme and Okada have been discussed supra and all comments presented therein are equally applicable herein.

In summary, the combination of Hell et al., Homme et al. and Okada et al. would lead one, at best, to the use of a carbon layer between the exposure source and the phosphor. As explained previously this is in conflict with a panel designed for use with mammography.

Willems et al. is cited as teaching additional layers. There is no teaching within Willems et al. which would augment the primary references to such an extent that the teachings of Okada et al. would be ignored and a panel prepared in direct conflict therewith.

Willems et al. fails to mitigate the deficiencies of the primary references and therefore the rejection is improper.

The Office has opined that the use of storage phosphor panels and screens are well known in a variety of medical imaging applications including mammography. Applicants respectfully request that this statement be supported or retracted.

The rejection of claims 2-14, 29-30 and 32-44 under 35 U.S.C. 103(a) as being unpatentable over Hell, Homme and Okada

as applied above and further in view of Willems et al. is traversed.

New Claims

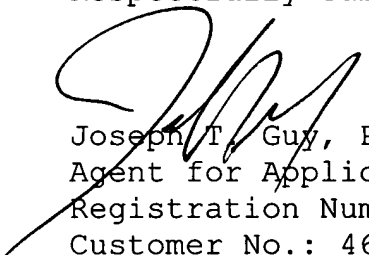
Claims 52-76 are newly entered claims which are believed to be patentable over the art of record. Examination on the merits is respectfully requested.

CONCLUSIONS

Claims 1-76 are pending in the present application. All claims are believed to be in condition for allowance. Notice thereof is respectfully requested.

Respectfully submitted,

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